

Appl. No. 10/060,100
Amdt. Dated December 22, 2003
Reply to Office action of September 3, 2003



Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Previously presented): A method for selectively enabling, during a search operation, at least one of a plurality of matchline segments within a row of a content addressable memory (CAM) array, each matchline segment having a plurality of CAM cells coupled thereto, the method comprising the steps of:

- (a) setting the matchline segments to a first search result condition indicative of a mismatch;
- (b) evaluating a first matchline segment for a second search result condition indicative of a match; and
- (c) selectively enabling a second match line segment only, in response to the second search result condition in the first matchline segment.

2. (Currently Amended): A method of claim 1, including propagating the second search result condition ~~conditions~~ in the first matchline segment along the row to indicate a search result condition for the row.

3. (cancelled)

4. (cancelled)

5. (Previously presented): A method of claim 1, wherein evaluating the first matchline segment comprises enabling the matchline segment and sensing a voltage level on the first match line segment.

6. (Currently Amended): The method of claim 4-5, said step of enabling includes allowing the match line segment to change to a match condition.

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7. (Currently Amended): The method of claim 1, wherein the first condition is a ~~high~~ low voltage level on the matchline and the second condition is a ~~low~~ high voltage level on the matchline and the second matchline segment is allowed to discharge to a low voltage level only when there is the second condition in the first matchline segment.

8. (Currently Amended): A content addressable memory (CAM) including a plurality of rows, each of the rows comprising:

- (a) a plurality of matchline segments having a plurality of CAM cells coupled thereto;
- (b) a circuit for precharging the matchline segments to a first search result condition indicative of a mismatch;

each said segment including:

- (i) a sense circuit for detecting a second result condition indicative of a match ~~miss~~; and
- (ii) a circuit for enabling a current source in a subsequent segment, to detect said second search result condition therein.

9. (Previously Presented): A method of searching a content addressable memory (CAM) having a plurality of rows of CAM cells, each row being coupled to an associated match line, each match line having a plurality of match line segments, the method comprising:

- (a) precharging the plurality of match line segments to a first condition indicative of a miss;
- (b) searching a first segment in each match line; and
- (c) selectively searching a second segment only if the search of the first segment results in a condition other than the first condition.

10. (Original): The method of searching a CAM as claimed in claim 9 further comprising the additional step of selectively searching any segment subsequent to the second segment only if the search of a previous segment results in a condition other than the first condition.

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11. (Original): A method of searching a content addressable memory (CAM) having a plurality of rows of CAM cells, each row being coupled to an associated match line, each match line having a plurality of match line segments, the method comprising:

- (a) precharging the plurality of match line segments to a "miss" condition;
- (b) searching a first match line segment; and
- (c) selectively searching a second match line segment only if a "hit" condition is detected in the first match line segment.

12. (Original): A method as claimed in claim 11 wherein the "hit" condition is propagated through all match line segments indicating a "hit" condition until a "miss" condition is detected causing that segment and any subsequent segments to be disabled.

13. (Original): A method of performing a pipelined search operation in a content addressable memory (CAM) having segmented match lines comprising the following steps:

- (a) precharging all match line segments to a "miss" condition;
- (b) searching a match line segment during a first clock cycle;
- (c) searching a subsequent match line segment during a subsequent clock cycle only in case a "hit" condition is detected in a previous match line segment;

14. (Original): A method as claimed in claim 13 further comprising the step of disabling a subsequent match line segment in case a "miss" condition is detected in a previous match line segment.

15. (Original): A method as claimed in claim 13 further including the step of selectively disabling search line drivers associated with subsequent match line segments once a "miss" condition has been detected in a previous match line segment.

16. (Previously presented): The method of claim 1, where the first matchline segment is evaluated in a first clock cycle and the second matchline segment is selectively enabled in a subsequent clock cycle.

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17.(New): The method of claim 1, where a plurality of first matchline segments is evaluated in a first clock cycle and a plurality of second matchline segments is selectively enabled in a subsequent clock cycle.

18.(New): The method as defined in claim 1, said first and second segments being adjacent segments.

19.(New): The method of claim 1, wherein the first condition is a high voltage level on the matchline and the second condition is a low voltage level on the matchline and the second matchline segment is allowed to discharge to a low voltage level only when there is the second condition in the first matchline segment.